Notice of Allowability	Application No.	Applicant(s)	
	09/833,118	ROSEN ET AL.	
	Examiner	Art Unit	
	Hope A. Robinson	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *2/6/04*.

2. ☒ The allowed claim(s) is/are *1-21 and 26-29*.

3. ☒ The drawings filed on *18 January 2002* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization of this Examiner's amendment was given in a telephone interview with Mr. Charles Van Horn on February 6, 2004.

3. The claims have been amended as follows:

Please cancel claims 22-25.

Claim 1 (Twice Amended) An albumin fusion protein comprising a member selected from the group consisting of :

(a) a brain derived neurotrophic factor protein and albumin, wherein albumin comprises the amino acid sequence of SEQ ID NO:18;

(b) a brain derived neurotrophic factor protein and a fragment of the amino acid sequence of SEQ ID NO:18, wherein said fragment has the ability to prolong the shelf-life of the brain derived neurotrophic factor protein compared to the shelf-life of the brain derived neurotrophic factor protein in an unfused state;

(c) a brain derived neurotrophic factor protein and a fragment of the amino acid sequence of SEQ ID NO:18, wherein said fragment has the ability to prolong the shelf-life of the brain derived growth factor protein compared to the shelf-life of the brain derived neurotrophic factor protein in an unfused state, and further wherein the said fragment comprises amino acid residues 1-387 of SEQ ID NO:18;

(d) a fragment of a brain derived neurotrophic factor protein and albumin comprising the amino acid sequence of SEQ ID NO:18, wherein said fragment has a biological activity of the brain derived neurotrophic factor protein;

(e) a brain derived neurotrophic factor protein, or fragment thereof and albumin, or fragment thereof, of (a) to (d), wherein the brain derived neurotrophic factor protein or fragment thereof, is fused to the N-terminus of albumin or the N-terminus of the fragment of albumin;

(f) a brain derived neurotrophic factor protein or fragment thereof, and albumin or fragment thereof, of (a) to (d), wherein the brain derived neurotrophic factor protein or fragment thereof, is fused to the C-terminus of albumin, or the C-terminus of the fragment of albumin;

(g) a brain derived neurotrophic factor protein or fragment thereof, and albumin or fragment thereof, of (a) to (d), wherein the brain derived neurotrophic factor protein or fragment thereof, is fused to the N-terminus and C-terminus of albumin, or the N-terminus and the C-terminus of the fragment of albumin;

(h) a brain derived neurotrophic factor protein or fragment thereof, and albumin or fragment thereof, of (a) to (d), which comprises a first brain derived neurotrophic factor protein or fragment thereof and a second brain derived neurotrophic factor protein or fragment thereof,

wherein said first brain derived neurotrophic factor protein or fragment thereof is different from said second brain derived neurotrophic factor protein or fragment thereof;

(i) a brain derived neurotrophic factor protein or fragment thereof, and albumin or fragment thereof, of (a) to (h), wherein the brain derived neurotrophic factor protein or fragment thereof, is separated from the albumin or the fragment of albumin by a linker; and

(j) a brain derived neurotrophic factor protein or fragment thereof, and albumin or fragment thereof, of (a) to (i), wherein the brain derived neurotrophic factor protein or fragment thereof, wherein the albumin fusion protein has the following formula:

R1-L-R2; R2-L-R1; or R1-L-R2-L-R1,

and further wherein R1 is brain derived neurotrophic factor protein or fragment thereof, L is linker, and R2 is albumin comprising the amino acid sequence of SEQ ID NO:18 or a fragment of albumin.

Claim 2 (Twice Amended) The albumin fusion protein of claim 1, wherein the shelf-life of the albumin fusion protein is greater than the shelf-life of the brain derived neurotrophic factor protein or fragment thereof, in an unfused state.

Claim 3 (Twice Amended) The albumin fusion protein of claim 1, wherein the in vitro biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to albumin, or fragment thereof, is greater than the in vitro biological activity of the brain derived neurotrophic factor protein or fragment thereof, in an unfused state.

Claim 4 (Twice Amended) The albumin fusion protein of claim 1, wherein the in vivo biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to

albumin, or fragment thereof, is greater than the in vivo biological activity of the brain derived neurotrophic factor protein or fragment thereof, in an unfused state.

Claim 5 (Twice Amended) An albumin fusion protein comprising a brain derived neurotrophic factor protein or fragment thereof, inserted into an albumin, or fragment thereof, comprising the amino acid sequence of SEQ ID NO:18 or fragment thereof .

Claim 6 (Twice Amended) An albumin fusion protein comprising a brain derived neurotrophic factor protein or fragment thereof, inserted into an albumin, or fragment thereof, comprising an amino acid sequence selected from the group consisting of:

(a) amino acids residues 54 to 61 of SEQ ID NO:18;

(b) amino acids residues 76 to 89 of SEQ ID NO:18;

(c) amino acids residues 92 to 100 of SEQ ID NO:18;

(d) amino acids residues 170 to 176 of SEQ ID NO:18;

(e) amino acids residues 247 to 252 of SEQ ID NO:18;

(f) amino acids residues 266 to 277 of SEQ ID NO:18;

(g) amino acids residues 280 to 288 of SEQ ID NO:18;

(h) amino acids residues 362 to 368 of SEQ ID NO:18;

(i) amino acids residues 439 to 447 of SEQ ID NO:18;

(j) amino acids residues 462 to 475 of SEQ ID NO:18;

(k) amino acids residues 478 to 486of SEQ ID NO:18; and

(l) amino acids residues 560 to 566 of SEQ ID NO:18.

Claim 7 (Twice Amended) The albumin fusion protein of claim 5, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the shelf-life of the brain derived neurotrophic factor protein or fragment thereof, as compared to the shelf-life of the brain derived neurotrophic factor protein or fragment, in an unfused state.

Claim 8 (Twice Amended) The albumin fusion protein of claim 6, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the shelf-life of the brain derived neurotrophic factor protein or fragment thereof, as compared to the shelf-life of the brain derived neurotrophic factor protein or fragment, in an unfused state.

Claim 9 (Twice Amended) The albumin fusion protein of claim 5, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the in vitro biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to albumin as compared to the in vitro biological activity of the brain derived neurotrophic factor protein or fragment, in an unfused state.

Claim 10 (Twice Amended) The albumin fusion protein of claim 6, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the in vitro biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to albumin as compared to the in vitro biological activity of the brain derived neurotrophic factor protein or fragment, in an unfused state.

Claim 11 (Twice Amended) The albumin fusion protein of claim 5, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the in vivo biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to albumin as

compared to the in vivo biological activity of the brain derived growth factor protein or fragment, in an unfused state.

Claim 12 (Twice Amended) The albumin fusion protein of claim 6, wherein said albumin fusion protein comprises a fragment of albumin sufficient to prolong the in vivo biological activity of the brain derived neurotrophic factor protein or fragment thereof, fused to albumin as compared to the in vivo biological activity of the brain derived neurotrophic factor protein or fragment, in an unfused state.

Claim 13 (Original) The albumin fusion protein of any of claims 1-12, which is non-glycosylated.

Claim 14 (Original) The albumin fusion protein of any of claims 1-12, which is expressed in yeast.

Claim 15 (Original) The albumin fusion protein of any of claim 14, wherein the yeast is glycosylation deficient.

Claim 16 (Original) The albumin fusion protein of any of claim 14, wherein the yeast is glycosylation and protease deficient.

Claim 17 (Original) The albumin fusion protein of any of claims 1-12, which is expressed by a mammalian cell.

Claim 18 (Original) The albumin fusion protein of any of claims 1-12, wherein the albumin fusion protein is expressed by a mammalian cell in culture.

Claim 20 (Original) A composition comprising the albumin fusion protein of any one of claims 1-12 and a pharmaceutically acceptable carrier.

Claim 21 (Original) A kit comprising the composition of claim 20.

Claim 26 (Currently Amended) A method of extending the shelf-life of a brain derived neurotrophic factor protein or fragment thereof, comprising the step of fusing the brain derived neurotrophic factor protein or fragment thereof, to albumin, or fragment thereof, sufficient to extend the shelf-life of the brain derived neurotrophic factor protein, or fragment thereof, compared to the shelf-life of the brain derived neurotrophic factor protein, or fragment thereof in an unfused state.

Claim 27 (Original) A nucleic acid molecule comprising a polynucleotide sequence encoding the albumin fusion protein of any one of claims 1-12.

Claim 28 (Original) A vector comprising, the nucleic acid molecule of claim 27.

Claim 29 (Original) A host cell comprising the nucleic acid molecule of claim 28.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hope Robinson whose telephone number is (571) 272-0957. The examiner can normally be reached on Monday-Friday from 9:00 am to 6:30 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher S.F. Low, can be reached at (571) 272-0951.

Any inquiries of a general nature relating to this application should be directed to the Group Receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted by facsimile transmission. The official fax phone number for Technology Center 1600 is (703) 308-4242. Please affix the examiner's name on a cover sheet attached to your communication should you choose to fax your response. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989).

Hope Robinson, MS

Patent Examiner

KAREN COCHRANE CARLSON, PH.D
PRIMARY EXAMINER